Space Weather Forecast

Issued on Saturday, 03 June 2023 at 01:20 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Chance of Moderate class flares with a risk of Minor-Moderate radio blackouts) throughout.

Analysis of Space Weather Activity over past 24 hours
Solar Activity: Solar activity has been Moderate due to a sole Moderate-class flare observed from a recently developed region in the north-centre disc. This is one of two recently active regions, along with a magnetically complex region in the southeastern quadrant. A previously active region in the southwest appears to have matured and eased in activity. There are eight regions in total, with the remaining regions appearing to be stable. No Earth-directed CMEs have been observed on available imagery.

Solar Wind / Geomagnetic Activity: Solar winds have declined from slightly elevated to ambient levels. Total magnetic field strength was weak, with the important north-south component also varying weakly. Geomagnetic activity was Quiet to Unsettled.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is at background levels with no solar radiation storms observed.

Four-Day Space Weather Forecast Summary
Solar Activity: Solar activity is likely to be mainly Moderate due to the two most active regions on the visible disc, with one in the southeast and one in the north-centre disc. There is a low risk of High activity being reached, especially from the complex southeastern region.

Solar Wind / Geomagnetic Activity: No Earth directed CMEs are forecast. Solar wind speeds are forecast to be at mainly ambient levels, but with a possibility of connecting to a fast solar wind on 03 and 04 June where speeds could reach elevated levels. Mainly Quiet to Unsettled geomagnetic activity with a very slight chance of Active or G1/Minor Storm intervals.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is expected to be at background levels with solar radiation storms unlikely to occur. However, there is a slight 10% chance of reaching the Minor Storm threshold should any larger flares occur.

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	10	10	1	1
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	Yes	50	50	50	50
Very Active	R3 to R5 X	No	10	10	10	10

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	10	10	10	10
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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